

## WHAT IS CLAIMED IS:

1. A printing apparatus which performs printing by scanning a carriage that supports a printhead having a plurality of printing elements arrayed in a  
5 predetermined direction, on a printing medium in a direction perpendicular to the predetermined direction, comprising:
  - a printing data memory which stores printing data of a raster format;
  - 10 a buffer memory which has a storage area corresponding to each printing element and stores printing data stored in said printing data memory;
  - a head parameter unit which stores information on an arrangement of the printhead; and
  - 15 a buffer controller which controls, in accordance with the information stored in said head parameter unit, processing of reading out the printing data stored in said printing data memory and storing the printing data in said buffer memory, and processing of  
20 reading out the printing data stored in said buffer memory.
2. The apparatus according to claim 1, wherein the information stored in said head parameter unit includes at least the number of nozzle arrays of the printhead,  
25 the number of nozzles which constitute the nozzle arrays, and nozzles to be driven in the nozzle arrays.
3. The apparatus according to claim 1, wherein said

buffer controller converts the raster data into column data in reading out the printing data stored in said buffer memory.

4. The apparatus according to claim 1, wherein said  
5 buffer controller reads out the printing data stored in said buffer memory from each address.

5. The apparatus according to claim 4, wherein the printhead performs distributed driving for a predetermined number of nozzles, and said buffer  
10 controller calculates a read address in accordance with a distributed driving number in reading out the printing data stored in said buffer memory.

6. The apparatus according to claim 4, wherein said buffer controller includes a register which holds, by a  
15 plurality of addresses, data of predetermined bits read out by accessing each address of said buffer memory.

7. A printing apparatus which performs printing by scanning a printhead having a plurality of printing elements arrayed in a predetermined direction, on a  
20 printing medium in a direction perpendicular to the predetermined direction, comprising:

a printing data memory which stores printing data of a raster format;

a plurality of buffer memories which store raster  
25 data of predetermined bits in correspondence with the respective printing elements;

a head parameter unit which holds information on

the printhead;

acquisition means for acquiring address information subjected to read in said printing data memory on the basis of the information on the printhead  
5 in storing the printing data read out from said printing data memory in said buffer memory;

a buffer controller which stores the printing data read out from said printing data memory in said buffer memory, on the basis of the address information  
10 of said printing data memory that is acquired by said acquisition means; and

transfer means for transferring the data read out from said buffer memory to the printhead.

8. A printing data control method in a printing  
15 apparatus which performs printing by scanning a carriage that supports a printhead having a plurality of printing elements arrayed in a predetermined direction, on a printing medium in a direction perpendicular to the predetermined direction,  
20 comprising:

a printing data storage step of storing printing data of a raster format in a printing data memory;

a buffer step of storing printing data stored in the printing data memory, in a buffer memory having a  
25 storage area corresponding to each printing element;

a parameter storage step of storing information on an arrangement of the printhead in a head parameter

unit; and

5 a buffer control step of controlling, in accordance with the information stored in the head parameter unit, processing of reading out the printing data stored in the printing data memory and storing the printing data in the buffer memory, and processing of reading out the printing data stored in the buffer memory.

9. A printing data control method in a printing apparatus which performs printing by scanning a printhead having a plurality of printing elements arrayed in a predetermined direction, on a printing medium in a direction perpendicular to the predetermined direction, comprising:

15 a printing data storage step of storing printing data of a raster format in a printing data memory;

a buffer step of storing raster data of predetermined bits in a plurality of buffer memories in correspondence with the respective printing elements;

20 a parameter storage step of holding information on the printhead by a head parameter;

an acquisition step of acquiring address information subjected to read in the printing data memory on the basis of the information on the printhead  
25 in storing the printing data read out from the printing data memory in the buffer memory;

a buffer control step of storing the printing

data read out from the printing data memory in the buffer memory, on the basis of the address information of the printing data memory that is acquired in the acquisition step; and

- 5           a transfer step of transferring the data read out from the buffer memory to the printhead.